

REMARKS

Claims 1-6 are currently pending in the application. Claim 1 is an independent claim and claims 2-6 depend there from. Claims 1 and 3 are currently amended. Claims 4 and 5 have been cancelled. The Applicant respectfully requests that the application be reconsidered in view of the amendment set forth above and the following remarks.

I. Double Patenting Rejection

In the first paragraph on page 2 of the Office Action, claims 1-6 were rejected for double patenting because claims 1-6 conflict with claims 7-12 of Application No. 10/705,087. The Applicant has cancelled claims 7-12 in Application No. 10/705,087. The Applicant believes the cancellation of claims 7-12 in Application No. 10/705,087 have indeed resolved the noticed conflict and therefore respectfully requests that the double patenting rejection be withdrawn.

II. 35 U.S.C. § 112 Claim Rejections

In the second paragraph on page 2 of the Office Action, claims 1-6 were rejected under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, the Office Action states that “there is no indication whether the ultrasound has any relationship to the estimating/storing and displaying steps” in claim 1 and “the estimated strain rates” lacks antecedence in claim 1. The Applicant respectfully traverses the rejections, however, in order to advance prosecution in the application, the Applicant has amended claim 1 by adding the step of “acquiring ultrasound signal data” to clarify the relationship between the “quantitative stress echo ultrasound” and the estimating/storing and displaying steps. Further, “the estimated strain rates” language was replaced with “at least one tissue deformation value” and “the at least one tissue deformation value” was clarified as comprising estimating one or more strain rates and/or estimating one or more strains accumulated over the cardiac interval. Claim 3 was amended to make the language consistent with independent claim 1 (i.e., “at least one tissue deformation

value” replaced “tissue deformation value” and “strain rates” in independent claim 1 and likewise replaces “strain rates” in dependent claim 3). The Applicant believes the amendment of claims 1 and 3 have indeed clarified independent claim 1 and dependent claims 2, 3 and 6. Therefore, the Applicant respectfully requests that the 35 U.S.C. § 112 rejections be withdrawn.

III. 35 U.S.C. § 103(a) Claim Rejections

In the second paragraph on page 3 of the Office Action, claims 1-4 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Epstein et al. U.S. Patent 6,031,374 (Epstein) and Sano U.S. Patent 5,615,680 (Sano). Applicant respectfully traverses the rejections for at least the following reasons.

The proposed combination of Epstein and Sano are different from Applicant’s amended independent claim 1 since they do not teach or suggest by themselves or in combination, *inter alia*, the claimed method steps of estimating and storing an at least one tissue deformation value using the ultrasound signal data for a heart wall tissue segment of a patient over a cardiac interval during each of at least two stress periods, where a level of stress on the patient is different for each of said at least two stress periods; and simultaneously displaying the estimated at least one tissue deformation value for each of said at least two stress periods as a function of time over the cardiac interval, wherein the step of estimating the at least one tissue deformation value comprises estimating at least one of: at least one strain rate, and at least one strain accumulated over the cardiac interval.

Rather, Epstein discloses conducting an MRI scan in which velocity encoded NMR data is acquired for a slice through the heart. Velocity images and magnitude images are reconstructed at multiple cardiac phases and masks are formed using the magnitude images. The masks are applied to the velocity images to isolate the left ventricle, and rigid body motion is calculated and subtracted from the masked velocity images to indicate deformation of the left ventricle.

Sano discloses a diagnostic ultrasound system comprising an element for detecting a velocity of motion of a tissue, such as a cardiac muscle or a vascular wall, contained in an object

at every sampling point in a section of the object and an element for creating two-dimensionally mapped data of the velocity in the section. The system further comprises an element for analyzing a motion state of the tissue on the basis of local velocities falling into a plurality of local regions set on the two-dimensionally mapped data of the velocity and an element for displaying analysis results of the motion state. The velocity detecting element transmits an ultrasonic pulse signal toward the tissue in order to acquire a Doppler shifted echo, according to a pulsed Doppler technique.

Neither Epstein nor Sano teach or suggest, alone or in combination, each of the elements of independent claim 1. Thus, for at least the reasons set forth above, Applicant respectfully asserts that claim 1 is allowable over the proposed combination of Epstein and Sano. Applicants request that the rejection of claim 1 be withdrawn.

Because dependent claims 2, 3 and 6 depend, directly or indirectly, from independent claim 1, and because claim 1 is allowable over the proposed combination of references, Applicant asserts that rejections of dependent claims 2, 3 and 6 are now moot. Applicant asserts that claims 2, 3 and 6 are also allowable over the cited references and requests that the rejections of claims 2, 3 and 6 be withdrawn.

Appl. No. 10/705,419
Amdt. dated Sept. 11, 2006
Response to Office Action of June 9, 2006

CONCLUSION

Based on at least the foregoing, it is respectfully submitted that the pending claims define allowable subject matter. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized to charge additional fee(s) or credit overpayment(s) to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

A Notice of Allowance is courteously solicited.

Dated: September 11, 2006

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Peter J. McAndrews", written over a horizontal line.

Peter J. McAndrews
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